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To: CALFED Bay-Delta Program  
Comments of Sutter Extension Water District  
Board of Directors to the June 1999 CalFed  
Bay-Delta Second Draft Programmatic EIS/EIR  
Date: September 21, 1999 Page 20

Tim Strohman  
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We want CalFed to understand that SEWD wants to be part of the solution and not part of the problem in trying to solve the physical, environmental and alleged deteriorating fishery "waters" of the 738,000 acre Bay-Delta Geographic Area. However, the CalFed documentation and program goals must recognize that existing land and water development with SEWD, Sutter County and Sutter Basin have maintained streams, tributaries and rivers for the benefit of existing wildlife vegetation, fish and waterfowl. To do otherwise is to contradict existing water right law and continue to foster the illogical position of a "return to nature" approach to dealing with: 1) rapidly increasing urban growth; 2) a population estimate in California which exceeds 47 million by the year 2026; 3) increased commercial harvest of California's fisheries; 4) the continued introduction of introduced fish species into the San Francisco Bay-Delta; and 5) environmental demand for increased "in-stream" water to foster a "return to the nature of the 60's and 70's."

Please be assured that SEWD will actively oppose this second June 1999 version of the CalFed Programmatic EIS/EIR unless we receive: 1) Meaningful answers to this letter specifically including our seven (7) series of questions posed in our conclusion, and 2) CalFed provides SEWD a time-line for the building of either off-stream or on-stream surface water storage facilities which will demonstrate some construction and/or operation prior to December 31, 2005.

Realizing that this '99 CalFed EIS/EIR is programmatic and not site-specific; the attitude which is conveyed in the 4,700+ pages of documentation is more amorphous than factual and/or objective.

Sincerely,

SUTTER EXTENSION WATER DISTRICT

  
RON HARRINGTON, President of the  
Board of Directors of Sutter Extension Water  
District pursuant to the Supporting Resolution  
adopted on September 21, 1999.

KH/kz  
cc: Sutter County Board of Supervisors  
Association of California Water Agencies  
Northern California Water Association  
Senator Tim Letic  
Assembly Member Sam Assestad  
Assembly Member Richard Dickerson  
Assembly Member Helen Thomson  
Congressman Doug Ose

19 September 1999

Lester Snow, Executive Director  
CALFED Bay-Delta Program  
1416 Ninth Street, Suite 1155  
Sacramento, CA 95814

Subject: Comments on Draft Program EIR/S on CALFED Bay-Delta Program  
Preferred Program Alternative and Technical Appendices

Dear Mr. Snow:

I am a professional urban planner and a writer.

Having studied the Draft EIR/S and its supporting technical appendices since a year ago as they developed, I feel they represent the most thoughtful and careful effort to plan for California's water future in our state's history. This planning process is unprecedented in its accounting for environmental concerns. This planning process has national implications as well, certainly for other western states, but also for other regions where large agriculture and riparian ecosystems are at risk from continuing pollution and development encroachment. CALFED's staff and constituent agencies are to be commended for being integrative and comprehensive in the program scope, for bringing diverse and competing interests to the planning process, and for carefully balancing ecological and economic concerns.

In particular, CALFED is to be commended for the "solution principles" that were developed for use as ground rules for viable and workable actions to be included in the CALFED Bay-Delta Program's implementation phase. Noble as these principles are, I am skeptical that they can be mutually adhered to by the process's parties because of the depth of conflicts over water here.

Historically, major water developers and water users in California have taken water and land from ecosystems, wildlife, and fish that are native to California and left them to languish, and vulnerable to displacement by nonnative species. This is also true for family farms and farm communities which draw their wealth from the land. This history notwithstanding, it is still in everyone's interest -- including agricultural corporations and the state's growing cities -- to make peace with natural California by being just to stressed species and communities that rely on water and land directly for their livelihoods. The kind of environmental justice California needs now would address this reality. The CALFED Bay-Delta Program and its solution principles do not.

My comments focus primarily on inadequacies in the project description itself, and with major concerns regarding:

- water transfer framework
- surface storage
- water use efficiency program

1233(2)

1233(3)

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19 September 1999  
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- the peripheral canal
- ecosystem restoration program
- watershed management program
- implementation plan

#### Water Transfer Framework

The water transfers framework is fundamentally flawed because it does not satisfactorily address community and environmental impacts that can result from water sales. I have attached two articles I wrote on transfers for insertion into the public record. WT-4-2

The framework spends tremendous amounts of verbiage on how a functioning water market could be made to "work." Yet creating a water market is at bottom an insane idea, certainly not an ecological one. The reason is that a functioning water market will redirect water supplies away from their relatively broad distribution now, and will concentrate their usage among the wealthiest farms and cities in California who can afford to get as much as they can. The water transfer framework contains no regulatory framework to prevent this even greater irrationality from occurring, when compared with the current irrationalities that now exist. A water market is utopian, and if ever fully realized would surely turn the Sacramento Valley into an even larger desert than the Owens Valley now is, as water ranchers fall over themselves rushing to get in line as "willing sellers." WT-1-2-6

Even if CALFED's transfer framework falls short of establishing a functioning market, but provides for a relatively low level of transactions year in and year out, there are still substantial problems with relying on transfers for increasing reliability of supplies. The quest to create reliable and secure supplies through transfers may greatly destabilize rural communities throughout the Central Valley. Numerous transfers have occurred in the 1990s and 1980s; each one is different. A number of them have generated unemployment, lost revenues to local governments, and enriched water rights holders at the same time. In this way, water transfers on an increased scale may generate tremendous windfalls for those holding water rights, and would politically and ethically be a gift of public funds to private land owners, even though it would no longer be "illegal." Subjecting rural communities to the vagaries of landholders' opportunities to cash as a matter of public policy is, well, antithetical to the public interest for those communities, and should be so for all conscientious Californians as well. WT-1-2-4

CALFED should face this ethical issue in water transfers squarely to avoid the specter of a grand desertification of the Sacramento Valley. The CALFED Bay-Delta Program should recorient the water transfers framework to encourage intra-basin transfers within limits and subject extra-basin transfers to full WT-4-1-4

The definition I employ of a water market is one in which a substantial volume of transactions occur between buyers and sellers that establishes a going market price for water. The water transfers framework employs no apparent definition of what a "market" actually is, and carefully blurs the distinctions between "transfers" and "market transfers" leading to a convoluted muddle about what is likely to occur in a water "market" in California as CALFED Bay-Delta Program implementation.

WT-00-17

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disclosure, public notice, and careful public scrutiny. Transfers should be seen as policy tools, not simply as extensions of land owner property rights to reap windfalls.

The water transfer framework should also strengthen and clearly define what a "basis" is for the purpose of providing predefined and consistent regulation of transfers. WT-4-5-1

Interim CALFED staff work on water transfers explicitly stated that a functioning water market will require surface storage, both to provide the volume of water needed to make a "going price" for water possible, and to have the engineering flexibility to make water releases and other technical manipulations workable for the water "market." In other words, to make the water market utopian work, CALFED believes it needs additional reservoirs to enlarge the "pie" of water supplies, and that they need the peripheral canal to install efficient plumbing for marketing purposes. This clear and obvious linkage between creating a water market and building new dams and reservoirs (as well as the Peripheral Canal -- see below) is ignored by the current version of the Water Transfer Framework, and the project description in the Program EIR/S. This makes the EIR/S project description fundamentally inadequate by not disclosing these causal relations and evaluating their potential impacts on the various regions of California, including, but not limited to, the Bay-Delta. WT-1-2-1

The water transfers framework, in this light, appears to move in a policy direction that contradicts California's area of origins statute, without providing adequate community and environmental protections. WT-2-1-3 CR13

#### Surface Storage and Water Use Efficiency

Without question, dams and reservoirs are the most flexible forms of water storage ever developed by modern societies. At the same time, they are terribly wasteful in California where large bodies of water are exposed to sunbaths' evaporative powers for upwards of 6 to 8 months out of every year. In contrast, groundwater "banks" (or aquifers) are quite effective at resisting evaporation. Of course, they recharge more slowly than reservoirs when runoff and recharge happens.

Given the quantity of stored surface water supplies in California, if we add CR2 more surface storage we will increase the surface area of water that is exposed to evaporation, a wasteful deployment of both water and public capital. CALFED should no longer plan for additional storage, but instead should concentrate on developing aggressive and innovative water conservation programs in collaboration with all local agricultural and urban water districts throughout California so that our existing supplies are used as efficiently as possible.

I'm not for efficiency for efficiency's sake, but since Californians care passionately about their physical and natural environments, most would gladly conserve water if it means no more valleys drowned and habitats needlessly sacrificed for patterns of water use that could be still improved. With a CR2 substantial share of the funds that are being spent by CALFED, DWR and the

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U.S. Bureau of Reclamation to study new storage projects, thousands of ultra-low floods could be installed as conservation refuges throughout urban California. That it has not yet occurred is a failure of leadership; to ignore conservation's remaining potential would condone environmental degradation and injustice.

Multiply that by the \$70 million that is about to be spent on the Integrated Storage Investigations, and apply it to conservation investments, and there are probably a couple of million acres-fast to be saved in any one year statewide; the cumulative conservation of water and environments would repay our children in buckets, including the children of people who migrate to California over the next 40 years.

The experience of Los Angeles with conservation, prodded for decades by the Mono Lake Committee (MLC), must be spread throughout California. We have excellent conservation and efficiency examples; we need to generalize them throughout the state. MLC's collaboration with community-based organizations throughout the Los Angeles basin to conserve water also created jobs and stimulated production and innovation of water conservation technology. CALFED is missing a grand opportunity to improve water use efficiency statewide and avoid building new dams.

#### The Peripheral Canal

I am aware that the "isolated conveyance facility" is not the old Peripheral Canal; and that the latter-day canal's design would be smaller than its predecessor. But it would still divert water from the Sacramento River at Hood, sluicing it around the "periphery" of the delta in a "canal." Hence it is still a peripheral canal.

I am also aware that the peripheral canal is not part of the preferred alternative. However, I would just note for the record that this PEIR/S contains program level evaluations of the impacts of the peripheral canal that indicate strongly that the canal would be very detrimental to Bay-Delta water quality because of the loss of freshwater flows through Delta channels, allowing sea water and its predator, the X2, to penetrate deeper and deeper into the estuary. The ecological, economic, and recreational impacts of greater seawater intrusion on the Delta would be substantial.

PH2-3.1-3  
PH2-3.7-6  
PH2-2.1-1

Inclusion in the preferred alternative inclusion of the peripheral canal's "conveyance" to ease through-conveyance for exports will essentially be a self-fulfilling prophecy, leading to a full peripheral canal. The CALFED water quality, watershed management, and water use efficiency programs are currently too weak to improve water quality and quantity sufficiently to eliminate the need for the peripheral canal. Because of these program weaknesses, the preferred alternative is set up to fail, creating the requisite justification for the peripheral canal.

The peripheral canal would of course greatly increase the flexibility and reliability of providing high quality water for Delta export, but it would also greatly increase the technical aspects of a functioning water market. As I stated above, I oppose water marketing, and anything that makes a water

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need. By limiting sprawl using watershed management principles in Central Valley cities and cities flanking the Bay-Delta regions, the increase in impervious surfaces and habitat losses brought by development can be slowed or even reversed.

I realize that even in the absence of CALFED urban sprawl has yet to be contained. My point is that CALFED is missing an opportunity to promote watershed management strategies that see cities as part of watersheds and highlight the fastest growing component of future water demand in California, our growing cities. Yet our cities grow in cancerous patterns, destroying habitat unnecessarily and wastefully demanding water for irrigating urban landscapes where natural landscapes had previously needed none. Watershed management, including containment of urban sprawl and farmland protection, is a powerful means of limiting the need for new surface storage, the peripheral canal, and water transfers.

One other facet of watershed management and ecosystem restoration is ignored by CALFED's Program and its PEIR/S: the greater San Francisco Bay from San Pablo Bay at Point Pinole south to Alviso and San Jose. This component of the Bay-Delta estuary is completely ignored by CALFED, even when it is obvious that only during times of vast flood flows such as that occurred in 1987 and 1998 does delta outflow reach into southern San Francisco Bay.

Creek diversions for storage by Bay cities, and deteriorated creek watersheds, CWS combined with extensive urbanization contribute to the Bay's demise. But it is just as true that Delta exports reduce Delta outflows year-round which obviously affect the quality of Bay waters. Water markets, increased surface storage, and a peripheral canal all would harm the Bay beyond its current condition by withdrawing still more flood flows and exporting flows that prehistorically used to circulate throughout the Bay. These CALFED proposals would undermine any gains that non-point source pollution regulation might possibly achieve in the inner Bay cities.

The draft PEIR/S is therefore deficient because it also ignores the environmental injustice and public health consequences that a Bay starved of freshwater flows forces on urban working class and communities of color who rely on Bay fish for protein in their diets. Currently the San Francisco Bay Regional Water Quality Control Board warns people to eat no more than two fish caught from the Bay in a month; for pregnant women, just one fish per month. The draft PEIR/S ignores this reality; the project description and the common programs exclude the greater San Francisco Bay from its problem definition despite its clear hydrodynamic, economic, and public health relationships to Delta outflows and exports. But CALFED should address it, since Delta exports are implicated in the Bay's declining health. Such a planning process is long overdue here.

Unfortunately, the CALFED Bay-Delta Program and its PEIR/S on the preferred alternative ignore these watershed management possibilities, and are therefore deficient and inadequate.

#### Implementation Plan

IA-10.0-23  
WD-42.0-1  
IA-5.3.0-6  
IA-7.14.1-1

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market more feasible, like the peripheral canal, I oppose.

On the basis of this PEIR/S I urge CALFED to remove the peripheral canal from CR16 consideration. California will never need a peripheral canal so long as water use efficiency, watershed management, and water quality regulation is pursued relentlessly and aggressively. If the quality of existing supplies is improved at their sources, that will help satisfy San Joaquin Valley and southern California water contractors, and increase the security and reliability of water supplies for all Californians.

#### Ecosystem Restoration and Watershed Management Programs

As Martha Davis, co-chair of the Watershed Management Work Group, remarked to WSH25-2 the Bay Delta Advisory Council at BDMG's Red Bluff meeting last week, there needs to be much greater integration of watershed management practices with other CALFED common programs, particularly ecosystem restoration. The Watershed Work Group's presentations to BDMG demonstrated that the potential of watershed management programs to improve water quality in the Bay-Delta ecosystem is untested, but enormous. One of the most important facets of watershed management potential is its reinforcement of the sustainability of CALFED ecosystem restoration projects. The land use, sediment control, and water quality practices will help protect ecosystem restoration investments over the long term.

But I believe that watershed management concerns must move beyond the necessary issues that are currently addressed by these work groups. Right now they include habitat protection, and development of indicators of habitat stress, as well as restoration investments and development of new land management practices. They should also include farmland protection and containment of urban sprawl. Farmland protection is essential for the maintenance of productive soil resources and increasingly wildlife-friendly agricultural land use practices in California. Farmland protection can also include protection of groundwater recharge areas.

CR17

Arresting urban sprawl is of critical importance in watershed management, and WSH1.5.1-6 is unclear. As I believe fully, ignored by the CALFED Bay-Delta Program Draft PEIR/S. If California cities cannot rein in their consumption of open space and farm land, then the state's water use patterns will not be contained — and we then will have forced ourselves to build more dams and canals perhaps. Thus, watershed management should be far more broadly construed by CALFED to include policy recommendations to the State Legislature that limit the geographical expansion of California cities, promote incentives and provide investments in "infill development" on vacant or underutilized lands already within municipal boundaries. I have included a second article ("Arresting Development") on urban sprawl for insertion into the public record that addresses this issue.

Even from the standpoint of CALFED's water transfers and surface storage proposals, the expansion of watershed management makes sense. Sprinkling greater costs of landscape irrigation to consumers, and far more water demand per capita than more compact, even dense urban development patterns would

ERPH1.5.0-2  
ERPH1.5.0-1  
WSH1.4.1-1

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Because there are so many fundamental flaws in CALFED's Bay-Delta Program, and despite its substantial efforts to be comprehensive and innovative in creating and understanding linkages among common programs (and between common programs and water management strategies) I am deeply concerned that implementation moves ahead toward a record of decision and notice of determination without these flaws being corrected.

Of course, at root CALFED's flaws reflect an underlying bias in the CALFED Bay-Delta Program (given its institutional agencies' participation in water exports) toward expanding exports to the corporate agricultural companies of the San Joaquin Valley and sprawling cities along the east and south sides of San Francisco Bay, and south of the Tehachapies. Moreover, the flaws I identify here do not surprise me.

But to ignore the flaws will undermine ecosystem restoration, continue the demise of San Francisco Bay, and ruin rural Central Valley communities because powerful agencies and their economic constituencies insist on ignoring the limits to water exporting that brought us the Raccoon decision in 1986.

Moreover, CALFED proposes that the state spend \$5.2 billion over 30 years to restructure water law for water markets and plunder terrestrial habitats for surface storage that would "save" the Delta from conflicts, while maintaining a stupefying refusal to face larger realities — including, but not limited to water issues — about how California accommodates the population that is projected to arrive here over that time. Compact cities, farmland protection, watershed management, and greatly strengthened water quality and efficiency programs are vital to meeting this looming reality. Additional dams and canals are not needed, and, if our state's and CALFED's leadership commits itself to these other methods, I believe they will never be needed.

As part of implementation of CALFED, the CALFED governance structure should be IP4.3-8 opened up to include watershed representatives locally elected to CALFED's policy advisory group, with CALFED agency seats forming a minority of voting seats in a system of proportional representation. The geographic domain of the "solutions" should include Bay Area creek restoration watershed and statewide networks of environmental justice groups. These would be important first steps in creating the truly democratic and watershed-based emphasis CALFED needs.

Thank you for the opportunity to comment on the Draft PEIR/S on the CALFED Bay-Delta Program preferred alternative.

Sincerely,

*Tim Strohman*  
Tim Strohman

Attachments: "Water Transfers and the Imperfect Water Industry in California"  
"Where the Money Flows: The Green Scheme for Delta Waters"  
"Arresting Development"

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001 Cherokee Watershed Group  
Southern California Watershed Alliance  
Butte Environmental Council  
Berkeley Ecology Center  
TerraViva Magazine  
Sonoma Ecology Center  
Urban Creeks Council  
Roasta Taboma Bioregional Council  
Clean Water Action  
Environmental Water Caucus  
Anderson Valley Advocate  
Pacific Institute for Development, Environment, and Security  
Alex Hildebrand  
Californians and the Land  
Sierra Nevada Alliance  
Center for Political Ecology  
Friends of the River



## LEAGUE OF WOMEN VOTERS OF CALIFORNIA

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President  
Carl Brannen  
President  
Katherine Pae President  
Barbara Longenecker  
Zane Martin

## TREASURER

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Frances

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Barbara Smith  
Barbara Smith

September 21, 1999

Mr. Rick Brannenbach  
CALFED Bay-Delta Program  
1418 Ninth Street, Suite 1155  
Sacramento, CA 95814

RE: Comments on the Draft Programmatic EIS/EIR of June, 1999

Dear Mr. Brannenbach:

The League of Women Voters of California submits these comments on the Draft Programmatic EIS/EIR of June, 1999.

First, we would like to acknowledge the improvement over the March 1998 draft. An enormous amount of work has gone into producing this Draft PEIS/R. However, we believe much work remains before the Record of Decision (ROD).

Our first concern is restoration of the Bay-Delta Ecosystem. Increased freshwater flows to protect fish and wildlife and ensure water quality for humans and the environment, especially in dry years, are critical to this goal. CALFED needs to better articulate how these flows would be acquired and maintained. Methods of obtaining additional flows for the environment should be more thoroughly explored and scientific studies to better define the freshwater needs of the Estuary's fish and wetland resources should be an ongoing part of the program. Assurances for guaranteeing these freshwater flows should include limits on the amount of water to be exported through or around the Delta.

CALFED needs to meet its objectives for Ecosystem Restoration, Water Quality, Water Supply Reliability, and Levee Stability by placing primary emphasis on non-structural solutions first: ecosystem restoration, conservation, reclamation, reoperation of the existing system, pollution prevention, and drinking water treatment. These options will be the least damaging environmentally and should be optimized during the Phase 1 (Years 1-7) before the decision is made to build new or expanded surface storage, canals, or conveyance facilities. This phased decision-making approach should be followed instead of the current Preferred Alternative identified in the Draft PEIS/R.

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The EIS/EIR should provide a more complete discussion about the nature of the environmental review that will take place for future projects under the Program. A commitment should be made that a project-specific EIS/R will be prepared for each new facility. As part of this complete environmental documentation, CALFED needs to complete the work referenced as Phase II Report Commitments Before or at Time of ROD. These commitments include Draft Water Management Strategy, Record of Decision (ROD) Document (a); Comprehensive Monitoring and Research Program (CMARP) for Stage 1a actions; Site-specific NEPA/CEQA etc. for Stage 1a Actions.

Additional Commitments by the time of ROD include:

- Final Water Management Strategy
- Programmatic economic analyses
- Measures of success of WMS tools "fully defined"
- Details of Environmental Water Account for Implementation immediately in Stage 1
- Linkages and assurances for new storage

## Governance

- Interim Governance Implementation
- New Framework Agreement for Policy Team
- New FACA Charter
- New MOU on CALFED Program
- Decision on Long Term Governance Structure

## Finance

- Final Finance Plan
- Cost allocation procedures and strategies
- Specific allocation of benefits
- Stage 1 cost estimates with cost-share, crediting policy, and Proposed Stage 1 financing strategy

## Regulatory Compliance

- Programmatic ESA Section 7 Biological Opinion and State Fish and Game NCCP Determination
- Programmatic Fish and Wildlife Coordination Report
- CWA 404 Strategy MOA
- State Board MOA on CWA 401 Certification, Strategy
- CZMA Programmatic Consistency Determination

Inconsistencies within the Draft Programmatic EIS/EIR and Appendices should be corrected. The correction of inconsistencies and the Report Commitments completed will need time for public review and comment. If the information significantly changes the draft preferred alternative, CALFED should reissue the Draft PEIS/R.

U-Preface-2

PH2-0-2

PH2-0-2

PH2-3.6.5-4

PH2-3.6.6-10

PH2-3.6.6-96

PH2-5-1

IP-4.3-3

IPF 5.0-1

IA.8.1-2

PH2-0-3

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CALFED has several agency and stakeholder groups working to strengthen various aspects of the program, e.g., ecosystem restoration, agricultural and urban water use efficiency, and water quality, watershed, etc. We believe these efforts should continue and the results incorporated in documentation before the ROD. We would like to emphasize the importance of providing adequate funding to complete this work. CALFED should ensure that resources equivalent to those expended on the studies and preparatory work for new storage and conveyance facilities are available to complete the work on other program elements: ecosystem restoration; water use efficiency; transfer; watershed; CMARP; Water Transfer Clearinghouse, etc.

Work that remains to be done in the many program areas includes development of strategic plans, which include clear goals, measurable objectives, and performance standards at the level appropriate for a programmatic document. As part of the adaptive management embraced by CALFED, strategic plans for each program area should be in place, should integrate adequate elements of the Comprehensive Monitoring and Research Program (CMARP) and include methods of evaluating whether a program is achieving its goals and objectives. This planning process is important for all the common programs. For example, the Watershed Program should incorporate a system that ensures that all of the Estuary's local watersheds are covered by watershed plans and that these plans have restoration of the watershed resources as a primary objective. In all program areas, actions should be explicitly linked to expected results. Also, actions in all program areas should be linked quantitatively to CALFED objectives, e.g., urban water conservation in Southern California should be credited to water needed to protect the Bay-Delta ecosystem.

The Draft PEIS/R needs to better reflect the interrelationships of program elements. For example, the agricultural and urban water use efficiency programs and the watershed programs will produce water quality benefits, which should be quantified and integrated into the water quality program, and also will provide water supply reliability needs which should be credited to flow needs for the Bay-Delta. This integration of program elements and explicit linkage of actions to expected results should be completed before the ROD.

The Water Quality Program is a special concern. CALFED should broaden the Water Quality Program and establish the objective of improving water at the tap, not focus solely on water quality at the pumps. CALFED should put significant resources into achieving public health protection for water quality at the tap, using a cost effective combination of alternative source waters, source control, and treatment technologies. The resources should be equivalent to the resources expended in evaluating options for improving water quality at the pumps.

The Draft PEIS/R needs to establish an environmental baseline that includes full implementation of the Central Valley Project Improvement Act, the Clean Water Act, the Safe Drinking Water Act, the Endangered Species Act, and the State

IP-1.1-2

IP-1.1-8

IPF 5.0-4

IP 1.1-14

WQ-3.2-1

WQ-12.0-1

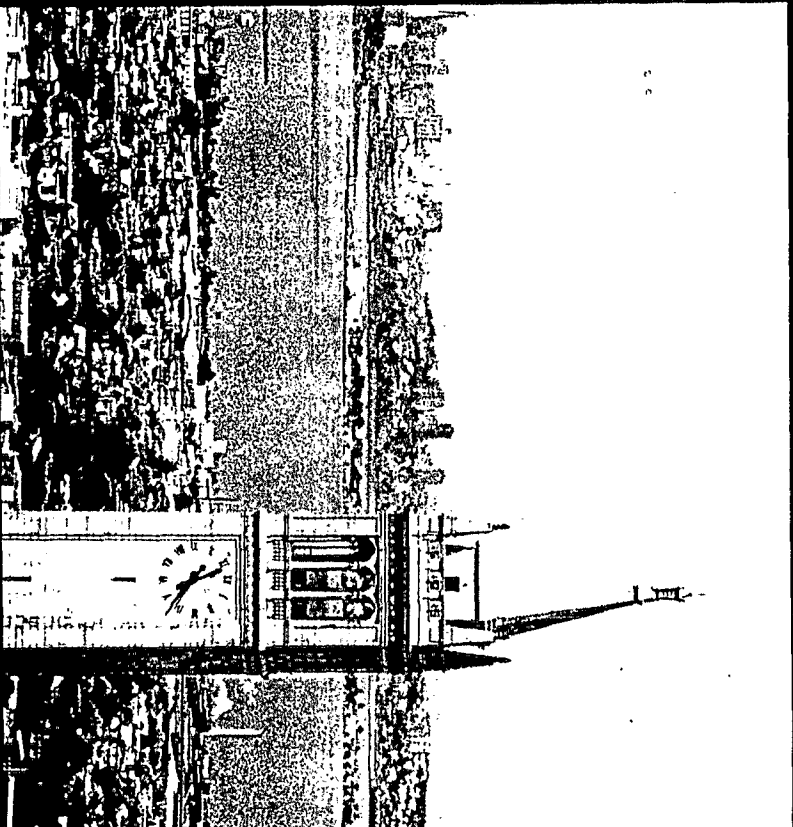
WQ-12.8-1

EAP III 7.3-1

Attachment A 1c

# Berkeley Planning Journal

Volume 8  
1993



## CONTRIBUTORS

TINKER: The Street Food Project: Using Research for Planning  
MCGOVERN: Edge Cities: Challenges for Urban Planning  
HANDY: A Cycle of Dependence  
STROSHANE: Water Transfers and Industry in California  
DREIER, WEISS, SALINS: Perspectives on U.S. Housing Policy  
CURRENT DEBATES: Egan, Servon, Pendall  
EDITOR: David M. Simpson

C-116081

C-116081

WATER TRANSFERS AND THE  
IMPERFECT WATER INDUSTRY IN CALIFORNIA

Tim Stroshane

Abstract

*Market ideology often obscures public choices about reasonable and beneficial uses of water. Current debates in California water policy reflect the tug of war between the potential efficiency and flexibility of water transfers (often called "water marketing") and the desire for a stable and reliable California water system. The water industry's paramount concern remains the protection of the reliability and stability of operations of its complex socio-technical systems for delivering water, particularly at a time when environmental concerns over instream uses of water are increasing. Loosening restrictions on water transfers while protecting appropriative rights is a flexible approach to meeting long-term water demand. But given such market imperfections as oligopoly and redistributive land rents, state regulation of transfers of California's most political natural resource—for example, through a drought water bank—remains likely in the future.*

Since California voters defeated the Peripheral Canal in 1982, many water policy observers have believed the era of capital-intensive, large-scale water projects is over. With a liberal admixture of market economics and good old-fashioned Western boosterism, many of these observers, some of them market-oriented resource economists, some of them dyed-in-the-wool environmentalists argue that creating a free market for water would help achieve greater efficiency by reallocating water to the highest bidder and, therefore, its most economically beneficial use. This would postpone the day, perhaps indefinitely, when new capital facilities would be needed to meet the water demands of California's growing economy.

This scenario may be too good to be clearly understood. Market ideology often obscures public choices about reasonable and beneficial uses of water. Market-induced uncertainties make the California water industry nervous because they put the water system's reliability at risk (Curie 1983, Gottlieb and FitzSimmons 1992). Current debates in California water policy reflect the tug of war between the potential efficiency and flexibility of water transfers (often called "water marketing") and the California water system's stability and reliability. This essay reviews claims justifying a free market in water and focuses on oligopoly and land rent as significant market imperfections that make state intervention necessary, rendering these claims moot.

Oligopoly

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Under the owned by th water, not th al. (1966) fo basin of the Only a few water comp. service areas river water," sence, these tion and con

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### Oligopoly and Prior Appropriation

Water is a "limiting factor" in human development of the American West (Powell 1962 [1879], Worster 1985). Over 34 million acre-feet<sup>1</sup> of precipitation in the form of rain and snow fall in a "normal" year in northern California, about two-thirds of the state's total water endowment. Most of it is collected and stored in reservoirs in the north, transported in canals to farms, and delivered through water mains to urban users, most of whom reside south of the Sacramento-San Joaquin Delta. In California's valleys, runoff percolates into groundwater basins, from which it is eventually pumped for domestic, industrial, or irrigation use. There are almost no unclaimed water rights left in California. Surface water is regulated by the State Water Resources Control Board both in quality and in quantity, but groundwater is nearly unregulated by the state.

The California water industry is rooted in the state's hydrologic regime. This regime is a highly political ecosystem consisting of the state's endowment of rainfall, its geologic structure, its legal traditions and administrative structures, as well as its hydraulic systems for storage, transport, and delivery to water users throughout the state. These facilities are owned and operated by public water agencies at all levels of government. Private water companies account for only a small fraction of water "developed" by the state's water industry. Rights to surface water (that is not already diverted under riparian rights) are granted under the state's water law doctrine of prior appropriation, in which water rights may be granted by the state if the water is put to some type of reasonable and beneficial (i.e., economic) use. The 20th Century history of California water is the history of projects whose basis is the acquisition of appropriative rights to California water by local, state, and federal governments. Fully 70 percent of the appropriated surface water in California is controlled and allocated by federal, state and local governments (Table 1).

Under the California Constitution, waters arising in California are owned by the State of California. It is the legal right to beneficial use of water, not the water itself, that is at stake in water allocation. Bain et al. (1966) found intensive public control of water rights in every sub-basin of the Central Valley, except that of the Kaweah and Tule Rivers. Only a few entities diverting water were found to be private or mutual water companies. Most public agencies "individually have very large service areas and . . . divert correspondingly large absolute amounts of river water," a pattern still true today (Bain et al. 1966: 159). In essence, these agencies create an oligopolistic structure for the distribution and control of appropriative water rights in California.

Oligopoly control of water rights and large scale of service are rooted in the high fixed costs of water supply facilities (Bain et al. 1966).<sup>2</sup> These high fixed costs induce water agencies to form coalitions.

Table 1

*Reservoir Storage of Public and Utility Agencies in California*

Entity	Storage	Percent of Total
State of California <sup>a</sup>	6,362,000 a.f.	18.1%
Federal Government <sup>b</sup>	18,404,000	52.3
Local Districts <sup>c</sup>	8,839,000	25.1
Private Utilities <sup>d</sup>	1,578,000	4.5
Total Storage	35,183,000 a.f.	100.0%

<sup>a</sup>Primarily storage in the State Water Project.

<sup>b</sup>Primarily storage in the Central Valley Project, but includes Army Corps of Engineers projects.

<sup>c</sup>Storage of local irrigation districts, water districts, and county water agencies.

<sup>d</sup>Includes PG&E, Southern California Edison, and Pacific Power and Light.

Source: California Department of Water Resources (1987).

tions to carry out functions involving major scale economies (Bain et al. 1966). In addition, as large-scale water systems become more tightly linked between areas of origin and ultimate users, the more water agencies need to create secure, long-term demand for "their" water. This is done through rigid contractual arrangements (discussed below for the State Water Project) which heretofore have been unresponsive to changing economic, regulatory, and environmental conditions. These industry imperatives defend against "revenue instability that would threaten the payment of high fixed costs," including the financial obligations agencies have to bondholders (Bain et al. 1966: 192).<sup>3</sup> Transfers of water outside agency service areas have long been considered by water industry leaders as risky, since any uncertainty over rights could threaten a project's capacity to pay debt service.

Capital-intensive water facilities are not only expensive, they are durable. Consequently, the "short run" for these facilities is in fact a long time, on the order of human longevity, and thus economic misallocations may persist. Persistent misallocations may include: haphazard application of water rights; legal restrictions preventing separation of water sales from land sales; and "weak and inadequate" protection of instream uses such as recreation and fish and wildlife values are heavily subordinated to commercial values of water use.

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## Water Transfers in California, Stroshane

Larger, fully integrated agencies (*i.e.*, those whose functions span diversion, storage, transport, and wholesaling) are more responsible for such misallocations than the local water-producing agencies. Bain et al. (1966) also identified an oligopolistic tendency in local water agencies, many of which are dominated by corporate landowners:

The legal characteristics and responsibilities of local water agencies, public and private, are such that they may be viewed broadly as users' cooperatives, which exhibit economic behavior that is more attributable to such cooperatives rather than behavior characteristic of profit-seeking producer-sellers (p. 124).

Until the 1980s, the rigidity of the California water industry was further reinforced by its definition of water demand. In determining demand for water from the California State Water Project, water agencies, including the California Department of Water Resources (DWR), used only the engineering concept of need (that is, if there's a need, build more dams), not the economic concept of "need revealed by price." When the Brown Administration advocated the Peripheral Canal and some large reservoirs in northern California, DWR continued to justify these projects by appeal to a rigid legalism and an engineering bias (Dennis 1981). The "needs" embodied in contracts the state had at that time with its customers were thought immutable.

This rigidity softened, however, beginning with the defeat of the Peripheral Canal in 1982 (Gottlieb 1988). Due to events beyond its control, the water industry, particularly urban water agencies, with corporate and industry support, has moved to greater activity in water transfers or other market-like water transactions. These events are summarized elsewhere (Gottlieb 1988, Hundley 1992, Reisner and Bates 1990). The National Environmental Policy Act and the California Environmental Quality Act, the federal Wild and Scenic Rivers Act, the Clean Water Act, and judicial cases affecting Mono Lake and the Bay-Delta Estuary also irrevocably changed the regulatory environment of the water industry. Water rights decisions, like water contracts, are no longer thought immutable, and the State Water Resources Control Board, which adjudicates water rights in California, has emerged as the administrative focal point for struggles over water (such as with the Bay-Delta Estuary and Mono Lake). Instream uses (*e.g.*, fish, plants, and wildlife, as well as recreational uses) gained importance in water law for protection of aesthetic and ecological values.

### Projected Demand for Water

On the demand side, the water industry supplies the state's agricultural industry and its urban regions with a total of about 34.2 million acre-feet of water (Table 2). In 1985, agriculture consumed about 79 percent of the state's net water use (factoring in evapotranspiration, water losses, and outflow from an area that is used elsewhere). Urban

net water use was 16 percent of the state's water demand, while other uses accounted for the remaining five percent (California Department of Water Resources [DWR] 1987).

Table 2

*Net Water Use by Sector in California*

User	1985		2010	
	Acre-feet (000)	Share	Acre-feet (000)	Share
Agriculture	26,950	78.8%	26,750	75.1%
Urban	5,590	16.3	7,190	20.2
Other	1,680	4.9	1,680	4.7
Total	34,220	100.0%	35,620	100.0%

**Note:** Net water use is computed by adding evapotranspiration (the amount of water taken up by plants, transpired by them, and evaporated from the soil), the losses from a water distribution system that cannot be recovered, and outflow leaving an area. This estimate is essential in determining whether an area needs more water.

**Source:** California Department of Water Resources (1987, 1993).

Over the next 20 years or so, the surface supply of water is not expected to increase significantly. Even if major reservoir projects are completed in the near future, the overall water system in California is not expected to expand significantly, partly because of court decisions regarding Mono Lake and the Bay-Delta Estuary that will likely reduce exports from these sources.

But overall demand for water is not growing as rapidly as it once did, according to the California DWR. Projected net water use is expected to increase by only 1.4 million acre-feet from 1985 to 2010 (DWR 1987; DWR 1993: 164). This increase represents only 3.9 percent of the total projected water demand, and moderate conservation efforts could eliminate the need for additional capital facilities. One measure for achieving this reduction is promotion of water transfers.

### Water Transfers and Economic Theory

Phrases like "water transfers" and "free water markets" and "water trades" are often used interchangeably, and without definition can lead to confusion (Saliba and Bush 1987). "Markets" consist of the interactions of actual or potential buyers and sellers of one or more interrelated water commodities. Negotiated transactions generate prices and conditions of sale and use for each commodity. "Markets" represent transactions taking place continuously over time. When relatively few

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transactions take place, the market is considered thin, and a key feature of a market—the establishment of a going price—is lacking (Saliba and Bush 1987: 1, note 6), a condition that describes California water transfers, notwithstanding the Drought Water Bank (discussed below).<sup>4</sup>

Some transfers are voluntary; some are involuntary. Involuntary transfers may occur through forfeitures and abandonment, eminent domain, litigation, and legislative settlements of conflicting claims. Involuntary transfers are not the subject of this paper.<sup>5</sup> Voluntary transfers typically include at-cost administrative transfers and market transfers (Saliba and Bush 1987).

Separating water rights market transfers from non-market transfers are three attributes of market transactions. First, the money value of the water rights is recognized as distinct from land value and the value of improvements to land. Second, buyers and sellers each agree to the reallocation voluntarily. Third, price and other terms are negotiable by buyer and seller and are not constrained to be "not for profit" or "at cost" (Saliba and Bush 1987: 3-4).

Market transfers occur when three conditions hold true:

1. a mutual perception by potential buyers and sellers of the capture of net economic gains by transferring water to take advantage of place, season, or purpose over current use patterns;
2. returns to buyers outweigh the transaction costs of the water market purchase; and
3. the economic return from the water market purchase exceeds the opportunity cost of achieving water supply objectives through other means (including new capital facilities) (Saliba and Bush 1987: 5-6).

In theory, a free water market establishes economically efficient allocation, use, and supply of water when all economic agents behave as price takers, and all economic agents have complete legal and hydrologic information on water rights and opportunity costs of supplying water through other means. In addition, water rights must be: completely specified and enforceable; exclusive, so that no third-party effects occur; comprehensive, so that all attributes (e.g., water quality) and uses of water that generate value can be represented by water rights; and transferable, so that water rights holders can transfer rights in response to an attractive offer and water can thus flow to the highest bidder (Saliba and Bush 1987: 21-23, 25).

Markets are seldom free, though, for the world does not conform to these assumptions underlying theoretical market behavior. Because of market imperfections, transaction costs may arise, including costs incurred in identifying potential transfer partners, verification of ownership and physical description of water rights associated with the proposed trade, administrative costs associated with obtaining state

permits for the trade, and costs associated with litigation or protest hearings regarding the proposed transfer (Brajer et al. 1989: 500).

A good water deal is difficult to come by for other reasons, too. These include "externalities" (such as environmental impacts and third-party effects); the public goods characteristics of water (nonrivalry—or joint consumption—and nonexclusion of people from receiving water benefits such as from instream uses); imperfect competition among buyers and sellers (larger agencies undercutting prices that smaller ones cannot match, or the monopoly features of territory-based water agencies); imperfect information increasing risk and uncertainty; and equity issues (Saliba and Bush 1987: 24-26).

The presence of oligopoly also creates market imperfections that are usually the object of governmental regulation (Bain et al. 1966, Gottlieb 1988, Gottlieb and FitzSimmons 1992, Kahrl 1982, Liebman 1983, McWilliams 1949, Villarejo 1981, Worster 1985). In water market transfers, we will likely see larger agencies be better able to command prices, while smaller agencies may be coerced into taking them. Whatever else may be said about the virtues of water markets or water transfers, we are speaking of neither a small town's City Hall nor of Jefferson's yeoman farmers when we speak of trading water in modern-day California (McWilliams 1949, Villarejo 1981, Worster 1985).

#### Water, Rent, and the "Compensation Problem"

Because of imperfections, water markets will not necessarily ensure efficient use and transfer of water (Saliba and Bush 1987: 27). Writing about New Mexico, which has a longer historical experience with water transfers, Brajer et al. (1989) contend that "the basic requirements for a well-functioning, 'perfect' market do not exist," that there "appear to be few, as opposed to 'many,' buyers and/or sellers," and that "the availability of information about buyers, sellers and qualities of water rights is, at best, limited" (p. 507). Thus, economic theory applied to water markets shows that while water transfers may well occur in a liberalized regulatory environment, they will not necessarily be economically efficient.

Brajer et al. also point out a "special problem"—a dilemma that government faces if it wishes to develop markets for water further. On one hand, "serious equity considerations" arise when farmers have received federally-subsidized water for perhaps several generations, "and then are allowed to sell the water and keep the proceeds—the farmers are thus the recipients of large 'rent' payments" (Brajer et al. 1989). Ironically, the most likely buyers of water from these farmers are urban water agencies representing millions of taxpayers whose taxes could end up paying farmers for water for which the farmers previously received tremendous subsidies from the selfsame taxpayers.

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On the other hand, say Brajer et al., "if the farmers are not allowed to profit from the sale of their federal water, *they then have no incentive to sell their rights in the market, and the efficiency gains sought by the releasing of federal water may then be lost*" (Brajer et al. 1989: 509, italics in original).<sup>6</sup>

A point of clarification is in order about farmers selling their "rights." California irrigation district enabling law bestows on farmers "implicit rights in the district's water supply" (Smith 1989). These are rights to equitable and beneficial use of the district's water. However, they are not formal appropriative rights; the board of the district holds these rights in trust for landowners within the district (Smith 1989).

Smith (1989) calls this dilemma "the compensation problem." Solving the dilemma for landowners means structuring disbursement of water transfer proceeds as a negotiated corporate tender offer, or NCTO. First, the district board negotiates a water deal with a buyer. Second, the board then implements "a trading scheme in certificates that quantifies the equitable and beneficial interests of landowners" in the district's water supply. The board then repurchases certificates in the amount needed to fulfill the terms of the deal (Smith 1989).<sup>7</sup> The water gets delivered to the buyer, the district does not lose its appropriative water rights, and landowners get a rent payment for having received subsidized water for so long, now enshrined in water law as a tradable water right.<sup>8</sup>

In terms of economic theory, the NCTO distributes the rent payment for water (i.e., the return on land and water rights) equitably among the landowners who "tender their certificates" for water to the district. Politically, the district board gets respect from the landowners for engaging in the trade; legally, such an approach both conforms with existing law and prevents legal change that would lead to conflict and uncertainty over the district's appropriative rights (Smith 1989: 453).<sup>9</sup>

### Concepts of Rent

However, landowner behavior is more complex than is allowed for in the NCTO model. Landowners' behavior regarding "the compensation problem" must be viewed through the prism of economic rent to make sense of their motivations regarding water transfers. Gardner (1983) defines rent as the incremental return resulting from the value in use of water, less its cost once other factors of production have been paid (p. 84, note 36). Water price changes have two main implications for the distribution of rents:

1. the magnitude of the rent will have positive effects on annual net farm income; and
2. the rent will enter asset wealth over time, depending on the type of water right held (Gardner 1983: 103-4).

The value of a riparian right will be capitalized into the land value itself, because this right runs with the land and is therefore the most secure water right. The value of an equitable interest in a water district's appropriative rights or a water contract would be the present value of the discounted flow of water rents over the contract term.

Pivo (1984) and Walker (1974) distinguish two main kinds of rent. Differential rents accrue to landowners in part because of location, and are not a significant source of the "compensation problem" in water transfers. However, landowners may capture redistributive rents through their collective efforts in land markets and in the political arena. Unlike differential rents, redistributive rents are very much at issue in water transfer and merit closer examination.

Redistributive rents can be divided into three subclasses—oligopoly/monopoly, absolute, and transfer rents—based on their source. In many water districts, particularly in the Central Valley (noted above), land is owned in large parcels by relatively few owners. These landowners receive water for use in proportion to their acreage and their cropping plans. When land is sold under these conditions, it may yield a value that reflects the oligopoly or monopoly rents that drive land values above the increment attributable to differential rent. In land markets, as potentially with water markets, few sellers means higher prices can be charged. Values can thus be realized in excess of differential returns to the resource—especially if made workable by paper schemes such as negotiated corporate tender offers in local water districts. Oligopoly or monopoly rents redistribute rent payments according to the exercise of economic or strategic power in a land or water market.

Absolute rent is the increment of economic return to land obtained through the collective efforts of Central Valley landowners to expand their access to water rights. Absolute rent in water transfers could develop if landowners (as holders of the beneficial and equitable interests in a district's water supply) collude to use a land rush to convert the district into a water ranch. Landowners will only tender their certificates to the district board if they "get their price" for district water. If they cannot expand their holdings, they would hold out for the highest bid (their oligopoly rent) (Pivo 1984, Walker 1974).

Finally, an additional category of rent bears consideration: transfer rent,<sup>10</sup> or a transfer payment in the form of a subsidy, i.e., a redistributive rent, to water users. Transfer rents are creatures of public policy, often resulting from society's desire to achieve some public purpose through an income transfer, and are particularly common in federal water project service areas. Water subsidies have long been an income policy for rural America. Their original purpose was to lower artificially the private costs of developing the American West (Worster 1985, Rucker and Fishback 1983). The federal government provided

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water as a public good, nearly free of charge in some regions (Reisner 1986). The transfer payment continues through the use of long-term contracts, with political support provided by the landowners. The value of this transfer rent increased over time (Rucker and Fishback 1983: 53).

### Landowner Behavior and Economic Rent

Policy on water transfers affecting agricultural producers in California must account for several behavioral adjustments growers may make with respect to changes in prices for water. Growers may conserve water on a given crop; they may change to a different irrigation technology when it becomes cost-effective; they may shift to a water-saving crop; or they may shift to higher-value crops to absorb the increase in water price (Gardner 1983: 83-84).

The Bay Area Economic Forum (BAEF 1991), a partnership of Bay Area government and corporate officials, argues that

faced with the market value of the resource, farmers would have the proper incentives to economize on their use. That would mean adjusting their crop mix, acreage in production, or number of plantings to match water availability . . . But most importantly, [through market transfers] they would be given the incentive to innovate. Indeed, much of the irrigated farmland in the state faces reduced future yields without changes in water practices. Many farms need to make large capital improvements in order to avoid salinization of soils and high water tables. The best potential source of that capital would be the sale of some portion of their water (p. 10, note 17).

Most proponents of market-type water transfers do not acknowledge that the grower can refuse to plant as well, which could lead to an unsavory trend toward water ranching. If farms go without water, or with less water, fields may lie fallow and farmworkers go without employment, swelling local unemployment and welfare rolls. Businesses serving farmers and farm workers would suffer, and additional layoffs could multiply if water is transferred from rural agricultural areas. In the absence of restrictions on the use of rent proceeds from an NCTO, producers could shift to crops or production techniques that may reduce the demand for agricultural labor and business services in communities from which water is transferred.

### A Free Market Or A Regulated Industry?

Yet despite these well-known market imperfections involving water allocation, enthusiasm grew during the 1980s among urban water agencies, environmentalists, and business for creating active water markets. Perhaps the clearest statement of the ideal of an efficient market for water in California was made by Smith (1989):

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Economists and lawyers argue that water markets can help water users adapt to this era of expensive water. Voluntary negotiations among buyers and sellers would establish prices that provide current users with incentives to conserve water and reallocate a portion of their supplies to new uses. As a result, existing supplies would be stretched to serve more uses and economic growth would be supported by the transfer of water from low-valued to high-valued uses (Smith 1989: 446).

Environmental writer Marc Reisner and water lawyer Sarah Bates voiced similar appreciation for using the free market system to achieve environmental benefits:

Advocating the free market system as a cure for environmental ills is always a risky proposition; it is easy to find a thousand instances where unfettered capitalism has created environmental harm. But in the case of western water (at least for now) the transfer of water rights shows great promise as a means of achieving several important goals at once: supplying water-short urban areas while alleviating the drainage and salinity crisis while reducing surplus crop payments while promoting ecological health—all at a reasonable cost without new dams (Reisner and Bates 1990: 59).

The idea of water markets is receiving growing governmental support. The U.S. Supreme Court, in the 1982 case *Sporhase v. Nebraska*, declared that water is an "article of commerce" that need not know state boundaries (*Sporhase v. Nebraska*, 458 U.S. 941, 1982). The Department of Interior adopted policies that accommodate trades of federal project water (Reisner and Bates 1990: Appendix A). And the California legislature removed legal impediments to water transfers (Smith 1989: 447). Many water transfers are documented in the literature, but it is arguable whether they really constitute a continuous market (Gottlieb and FitzSimmons 1992, Reisner and Bates 1990, Saliba and Bush 1987).

Alternatively, the BAEF urges creation of a "market-based" approach to reforming the control and allocation of water in California based on the experiences of regulated oil, natural gas, and electric power industries (BAEF 1991). One virtue of this approach, at least, is that it would retain the "natural monopoly" characteristics of the water industry as an object of governmental intervention (BAEF 1991: i). In these industries, the obligation to serve and the reliability of these utility systems help shape regulatory policy debates. The regulatory process itself is intended to balance these socio-technical requirements with the public interest. Public trust consideration and public choices may be possible if the water "market" is subject to regulation. To major corporations and government, water (like power) is too important to leave to free market fluctuations in an arid region.

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### System Reliability and the State Water Project

In the debate about the control and allocation of water rights, the 1980s and early 1990s saw free market advocates gain the upper hand in the California Legislature and the U.S. Congress. Several laws passed in Sacramento that, in a piecemeal fashion, removed many barriers to water transfers in California. President Bush signed H.R. 429 in October 1992, a bill providing sweeping reforms to Central Valley Project operations, including provisions allowing and restricting water transfers. The effect of these legislative changes, however, has been not only to relax constraints on water transfers, but to force the water industry to find ways of assuring the integrity of the state's water system by restricting the conditions under which water transfers can occur.

Water agencies facing broad mandates to allow transfers must balance this new objective for the state's plumbing system with the need to keep the system reliable and functional. The next section examines concerns about maintaining the reliability and fiscal integrity of the State Water Project, and then examines legislative remedies for these concerns.

Curie (1983) studied necessary economic conditions for market formation and market activity in water transfers for the State Water Project. Developed surface water is allocated by means of long-term contracts by the California DWR among 30 contractors. Most contracts concluded by 1965 run for 75 years, and contain clauses which specify:

- entitlement water to be delivered, including the means of repayment;
- means of repaying costs of power generation associated with delivery;
- conditions for changes in entitlement levels;
- allocation during dry or drought years;
- allocation of surplus water when available (which only includes the variable, "south of the Delta" charge in its price); and
- rules for pricing State Water Project water—entitlement water charge is based on SWP production costs (including a fixed water charge, typically north of the Delta; and a variable charge for delivery costs of export from the Delta).

Curie believes that these rigid contracts preclude timely responses to changing relative economic values of State Water Project (SWP) water. SWP contracts also require that contractors obtain the prior written consent of the State before engaging in a water transfer, and they include a restrictive policy on transfers limiting water trades to "short-term emergencies." Curie offers three reasons for this restrictive policy: first, DWR fears market activity would reduce management control

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over water allocation and development of the SWP. Second, DWR fears the lack of reliability in the system if a general water transfer program operated in a drought period. Third, DWR fears market activity would threaten the SWP's financial integrity for bond repayment (Curie 1983: 7-9).

Curie concludes there are no legal obstacles to market formation among SWP contractors. Only the matter of assuring that bond holders get repaid is at issue. For contractors, the problem of a water market is different: market transfers do not occur because of the risk associated with the potential for "delivery security loss" of priority entitlement water due to market activity. The flexibility of water rights transfers (even if temporary and legal) creates uncertainty that is at odds with the law of prior appropriation (*i.e.*, the appropriative right) in which you must exercise your water right, or lose it. Curie suggests several "transfer criteria" for the SWP's review of potential water rights transfers, including:

- Fixed water charges of customers must be paid regardless of their market activity;
- Quantity, delivery point, and date of a proposed transaction must be submitted to the SWP for a "delivery feasibility check";
- Market-transacted water will not be included in any definition of a "threatened permanent shortage," effectively exempting this water from legal challenge as a lapsed right;
- Market-participating customers pay all market-induced production costs of the SWP; and
- No capital expansion of the SWP will occur because of market activity (Curie, 1983: 281 ff.).

Curie's "transfer criteria" seek to reduce uncertainty about water rights as well as shore up DWR's legitimate concerns about the SWP's financial obligations, but her proposal does not motivate landowners to support water marketing because it is not clear "what's in it for them." Until the reward in this system is more evident to water users, and not just to district contractors, the risks appeared to Curie in 1983 too great to engage in voluntary water market transfers.

During the mid-1980s, the California Legislature established broad state policies to facilitate voluntary transfers of water, including policy assurances that water rights of those transferring water would not be impaired or forfeited as a result of water transfers (California Water Code, Sections 109, 475, 1011, 1244, and 11961; DWR 1993; DWR 1989: 10-11). These changes give new flexibility to the once rigid prior appropriation doctrine, and they incorporate many of Curie's initial suggestions.

## Water Transfers in California, Stroshane

Then, on October 31, 1992, President George Bush signed into law major reforms of the Central Valley Project (CVP) (U.S. Congress 1991). The bill, H.R. 429, included provisions for planning and funding of wetlands and fisheries restoration projects, along with release of 800,000 AF to assist with protection of drought-stressed Delta ecosystems.

Section 3405, Title 34, of the bill authorizes any individual or district receiving CVP water "to transfer all or a portion of the water" to any other California water use or water agency, State or Federal agency, Indian tribe, or private non-profit organization "for project purposes or any purpose recognized as beneficial under applicable State law" (U.S. Congress 1991). This section also sets forth detailed requirements for water transfers: limits on total transferable quantity, averaged over three years; repayment at full cost rates; voluntary participation in transfers; consistency with the California Environmental Quality Act; a right of first refusal by other CVP water users; no adverse effects on the CVP's obligation and ability to serve its customers; and no significant long-term impacts on groundwater conditions in the seller's service area (U.S. Congress 1991, DWR 1993).

In addition, the Secretary of the Interior "shall not approve a transfer" if the Secretary determines a transfer "would result in a significant reduction in the quantity or decrease in the quality of water supplies currently used for fish and wildlife purposes" unless it is determined that such adverse effects "would be more than offset" by the benefits of the proposed transfer. Adverse impacts must be mitigated (U.S. Congress 1991). The bill does not require that impacts of transfers on communities be addressed, however. A third approach to water transfers, however, holds out hope that transfers may occur while community and environmental impacts are considered simultaneously. This approach is called a "drought water bank."

### The Emergency Drought Water Bank

In February 1991, after four drought years and three winter months of meager precipitation, DWR announced that the SWP would deliver only 10 percent of the requests by urban water agencies and no water to agricultural customers. Drought of this magnitude had not occurred in California in 60 years, since the drought of 1928-34. Governor Wilson established a Drought Action Team which recommended creation of an emergency drought water bank to allocate reduced supplies in the State Water Project to four critical needs: municipal and industrial use, agricultural use, protection of fish and wildlife, and carryover storage for 1992 (DWR 1992).

The Drought Water Bank (DWB) operates as follows: DWR purchases water from willing sellers (typically farmers willing to fallow their lands or substitute groundwater for surface deliveries; or local

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agencies with surplus storage to sell), keeps their entitlement water in storage, and then sells the water to agencies with critical needs. Within one month, according to DWR, 300 contracts were hastily concluded (DWR 1992). "This was a program that was implemented and then conceived," according to one staff member of the DWB (Aldridge 1992). Most sales went to southern California districts.

Despite being rushed into operation, the DWB intervened effectively to prevent price gouging and bidding wars during the 1991 Bank program. Governor Wilson required that all entities needing to transfer water from the Sacramento Valley (north of the Delta) to south of the Delta work through the Water Bank. This requirement was relaxed in the 1992 Bank, but DWR notes that few independent cross-Delta transfers occurred:

Several purchasers tried to arrange their own transfers but finally went to the Bank to meet their needs. Several sellers negotiated with the Bank and with independent purchasers and decided to contract with the Bank. These sellers preferred the institutional certainty that came with working through the Bank (DWR 1993: 178).

The State found the DWB worked well enough that it will become a permanent program to be activated during drought emergencies (DWR 1993). An Environmental Impact Report on the DWB program compared the drought water bank to a free-market alternative approach, revealing that the bank is superior from several standpoints. First, a "free market" approach in water transfers includes detailed involvement by a number of governmental agencies not directly involved as parties in the transfer. The DWB would represent a "one-stop shop" where buyers and sellers would have a streamlined process run by the DWR for trading water. Second, the Drought Water Bank program enhances the possibility that the public interest will be served through water transfers during drought conditions. During droughts, water supplies are limited, and bidders with the most money may buy all the water they need. Bidders with less financial power, on the other hand, may get little or no water. The DWB would offer one base price (a "going" price established administratively) north of the Delta and then add variable charges associated with pumping and transporting it south of the Delta. The Bank's ability to hold the base price down also enables it to safeguard the public interest by offering cheap water to such state agencies as the California Department of Fish and Game, which is responsible for protecting instream uses. In the absence of such an approach, it is possible that instream uses would be un- or underserved (DWR 1993).

Third, a drought water bank offers a better opportunity for public choice concerning the least environmentally sensitive transfers (*i.e.*, the ones that do the least harm) and to minimize local community economic impacts of transfers. A water bank can avoid buying from

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## Water Transfers in California, Stroshane

the same area too many years in a row to minimize ongoing wildlife, groundwater, and farm employment impacts (DWR 1993).

A free market approach to water transfers would likely be socially and economically costly because of the coordination efforts (*i.e.*, transaction costs) that individual buyers and sellers would have to undertake to deliver a desired quantity of water from one end of the state to another, with scheduling that is consistent with environmental constraints and hydrologic availability. There would be little protection in a free market against "paper water," except for *caveat emptor*. Government's coordinating role, brokering water transfers and operating the California water system, is as indispensable to the success of water transfers as it is unrecognized in free water market rhetoric.

### Transfers Do Not a Free Market Make

The justification for market-type transfers is economic efficiency; but economic efficiency is not readily observable since there are too few water market-type transactions to determine the presence of an equilibrium price of water in the marketplace. Buyer and seller may be better off as a result of a trade, but this does not mean that a water market exists or that economic efficiency has been achieved. Water markets fitting Saliba and Bush's description of market transactions, *i.e.*, continuous trading activity expressing a "going price" are not yet organized or institutionalized in California because individual users still cannot unilaterally seek a buyer for "their" water. The local water agency, the California DWR, and the Secretary of the Interior may still control the fate of any given water transfer.

Moreover, a case can be made that the water industry already is and will probably always remain a regulated industry, though not perhaps like the oil, natural gas, or electric industries. Water law is already known for its convolutions and complexities, which rival corporate tax law, or utility regulation. Should California ever regulate groundwater pumping, this complexity will only increase. Yet at precisely the same time that water transfers are looked on more favorably by the California Legislature and the U.S. Congress, environmental restrictions constrain potential for market actions.

A water market analogous to a capital market or a futures market may never really develop; as one official with the California DWR states: "You have to get specific. Water transfers have to be worked out on a case-by-case basis" (Western Water Education Foundation 1989). Some of the deals may be market-type transfers, while others may be more like administrative trades where no element of rent-making for either party is to be had. A drought water bank program holds hope that the state will be able to manage its water system flexibly and equitably during supply emergencies. In so doing, it will help to curb the excesses of a highly imperfect marketplace for water.

## ACKNOWLEDGMENTS

*The author thanks Professor Tim Duane, David Simpson, Rolf Pendall, and three anonymous reviewers for helpful comments on earlier drafts. The views expressed are my own.*

## NOTES

- <sup>1</sup>An acre-foot of water is the volume of water on an acre of land one foot deep, about 326,000 gallons of water, or approximately the consumption of a family of four in one year.
- <sup>2</sup>It is also a function of land holding patterns in the Central Valley throughout the last 120 years. See Liebman (1983), Chapters 2 through 5; and McWilliams (1949).
- <sup>3</sup>This is essentially the thrust of Williamson's argument (1975) that markets and firms are alternative instruments for completing a related set of transactions. He contends that the relative efficiency of markets versus firms (or bureaucracies) and costs of contracting vary with the human characteristics and the environmental factors involved.
- <sup>4</sup>This point is also reinforced by Curie (1983: 5).
- <sup>5</sup>It is important to mention involuntary transfers because they represent what every water rights holder seeks to avoid in negotiating voluntary transfers, because appropriative water rights call for holders of such rights to use water beneficially—or lose it.
- <sup>6</sup>The authors add that "we feel that this 'rent distribution' issue, which has not been addressed at any length thus far in the economics literature, could soon become an increasingly important component of the water allocation debate."
- <sup>7</sup>This has two facets: the board allocates certificates to all landowners according to the landowner's fractional claim to the district water supply based on taxable assessed valuation. Second, the board then repurchases certificates from landowners at the price of proceeds distributed to the "compensation fund" which the board sets up as part of the NCTO. The proceeds are divided only among landowners tendering certificates, which helps to ensure universal participation in the scheme.
- <sup>8</sup>Smith is unconcerned about a land rush resulting from the water certificates scheme. "The anticipated value of certificates represents an implicit land subsidy as farmers demand more land to receive larger certificate allocations." This would create no inefficiencies nor inequities, Smith claims. "The land rush," he writes, implying that one would occur, "will not distort the relative use of different land qualities" (Smith, 1989: 457). He thus seems to acknowledge that it encourages corporations to get out of farming and into water ranching.
- <sup>9</sup>Upon concluding the trade, the district board, according to Smith, would establish several accounts into which trade proceeds would be disbursed. These funds include: a compensation fund for the landowners; project accounts for environmental mitigation, lost return flows, groundwater recharge,

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## Water Transfers in California, Stroshane

or hydropower losses; and a "community redevelopment agency" fund to promote local growth and diversification through non-water investments. These funds represent Smith's acknowledgment of the need to internalize injury claims or other third-party effects of water transfers into these deals (Smith 1989: 453).

<sup>10</sup>What I call transfer rent was originally described by Richard Walker as redistributive rent (Walker 1974).

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# Arresting

## Development

by Tim Stroshane

I pull over at the strawberry stand at Lone Tree Way and Fairview Road southeast of Antioch. At the stand, where Kao Saechao and his parents display plump red strawberries for \$1 a basket, I buy three baskets, paying one of Kao's two younger brothers behind the counter. I bite into a fruit; it's sweet and juicy.

Better get it while it lasts.

Kao's eastern Contra Costa County strawberry field lies in what Tom Mooers, a field organizer with Greenbelt Alliance, calls "the wild west of sprawl development — perhaps the most threatened sub-region in the entire Bay Area." According to the alliance, the Bay Area's leading open space protection and land use planning organization, 50 percent of Contra Costa's orchards and cropland has been lost to low-density suburbanization since 1970.

I ask Kao how much longer his family expects to continue growing strawberries at this intersection. "Maybe one or two years," he replies. "We lease this land, and then the owner may want to do something with it. Then we'll have to do something else."

On a Saturday, cars clog this intersection, and immobile earth-moving equipment guards a huge pile of moved earth in Saechao's parking area. Several large developer signs point the way to Town Square Estates, Lyon Grove, Spinnaker.

"I can remember as a girl going out to Brentwood to pick cherries — all you could pick for a few dollars," recalls my friend Rochelle Wheeler when I described Lone

Tree Way. "The orchards were everywhere. It's sad to think they were so temporary."

Since 1949, nearly one million acres of farmland have disappeared in the Bay Area, according to the Greenbelt Alliance. In the last ten years, Contra Costa's cities and its county board of supervisors have approved 45,000 new housing units, including about 17,000 near Brentwood. Another 30,000 are under consideration

county-wide, with more slated for rural Sonoma, Solano, Alameda, Santa Clara, and southern Napa counties.

At stake here is not just rich farmland, with fresh produce accessible to city consumers. Nor is it just a matter of traffic and smog. The investments in new schools, subdivisions, and parks for Brentwood, Livermore or Fair-

field also represent opportunities lost for new jobs, housing, and services in nearby Richmond, Oakland, or Vallejo.

Environmentalists and communities of color have recently begun exploring common ground in changing California's tax and legal systems to deal with suburban sprawl. They have recognized that the ecological destruction, the long freeway commutes, and the sundering of our communities by race and class are bound into a single, basic problem, elegantly stated by Berkeley historian and geographer Gray Brechin: "We have no right to build infinite cities."

Low-density encroachment,  
which destroys farmlands  
and inner cities alike, is  
deliberate policy.  
And policy can be undone.

With all its social and ecological consequences, suburban sprawl is not inevitable. Low-density outward growth has resulted from distinct political acts, dating back to World War II when the Federal Housing Administration financed racially exclusive suburbs. Current laws and tax systems — combined with a cultural bias for American Dream landscapes, and our love of automobiles — help create sprawl.

With the force of law, local zoning requirements are a blueprint for auto-heavy, low-density land use: Typically, new development must be conveniently accessible to cars, with parking spaces required; have limits on a building's overall height and square footage; and have minimum setbacks for ample space between buildings.

Tax systems also play a crucial role, rewarding the "fiscalization of land use" and disinvestment in our older cities.

"We have a fiscal system that rewards cities for looking for industry and businesses and stores and penalizes them for taking (creating) housing," observes John Landis, a professor of city planning at UC Berkeley.

Many cities seek certain kinds of development to boost tax revenue, while limiting permits for affordable housing and outlays for mandated public services (police, fire departments, recreation, etc.). Cities court Wal-Marts and auto malls because their prodigious sales tax revenues help defray the costs of services provided to neighborhoods.

In fact, low-income (often multicultural) neighborhoods are often viewed as a double burden by city managers: since the neighborhoods have high-density housing, there is low property-tax revenue per unit; as a result, the taxes fail to keep up with the demand for municipal services.

With this fiscal disadvantage, municipal authorities look elsewhere for revenue. City managers, who are in charge of preparing budgets and recruiting business investment, may ignore neglected areas deemed "unsafe" by new businesses, leaving distressed neighborhoods to decline further. Finally, businesses may look to the peripheries or to newer cities, noted for their boosterish business climate.

Proposition 13, passed by California voters in 1978, has compounded the problem. Even in good years, city revenue growth falls behind both real estate values and inflation, eroding the local property tax base, even of newer subdivisions. This occurs because Proposition 13 caps growth in property tax revenue at two percent per year. Cities and counties compete for new tax base to replace eroding revenues; meanwhile, low-density zoning spreads new sprawl thinly across our freeway-laced landscape.

It's close to a zero-sum game. New sprawling communities require new services and infrastructure: schools, police, fire, emergency medical services, parks, sewers, water, and roads. When counties invest in these new services, they forego opportunities to improve the same services in inner cities, reinforcing their abandonment.

Despite the fiscal incentives to build commercial development, housing approvals also contribute to sprawl. Housing

does get built — largely because developers pay hefty fees to outlying cities to extend sewer and water service to their subdivisions. Builders preserve their profits by building the fees into the sale price.

Developers often find it more profitable to build in outlying areas partly because land may be cheaper and low-density construction costs less per unit. For example, building codes require structures over four stories to use more expensive steel frames, instead of wood frames. In multistory buildings, typical of core cities, developers must invest in far more capital equipment, including rental of attached elevators. The one advantage an inner city may have in attracting development — an existing infrastructure — is offset by



With the force of law, local zoning requirements are a blueprint for auto-heavy, low-density land use.

developer-dominated special districts that pass on the cost of new infrastructure in property taxes.

The fact is, says UC's John Landis, "we should be able to do better" — should be able to provide the Bay Area with more diverse housing choices reflecting our demographic, geographic, and cultural diversity.

Instead, the opposite is happening:

- **Eastern Contra Costa County:** True to Tom Mooers' view, the General Plan for Brentwood, the state's fastest-growing city, calls for the city's 1998 population of 17,000 to expand to 79,500 by 2010. South of Brentwood, the proposed Cowell Ranch development would transform over 4,000 acres of hills, marshland, and some of the state's best agricultural soils into a new town of 5,200 houses. Even the scaled-back version, which sets aside more permanent open space, calls for 3,500 units.

- **Central Contra Costa County:** Tassajara Valley, just east of San Ramon and south of Blackhawk, is the site developers proposed to fill with 6,000 housing units on 4,500 acres, stretching from the base of Mount Diablo south to the Alameda County line. The proposal, withdrawn after the Greenbelt Alliance organized overwhelming community protest, mirrors the typical problems of development on the I-680 corridor: inadequate water supply and sewer capacity, destruction of habitat, dependence on the automobile. Developers are still attempting to raise a piecemeal version out of the ashes.

- **South San Jose:** Coyote Valley, the last remaining agricultural district between San Jose and Morgan Hill, may

become the new corporate headquarters for Internet company Cisco Systems, on a 400-acre site for some 20,000 employees. This would trigger development of up to 20,000 homes, which could clog freeways in south Santa Clara County and bring San Jose nearly to Morgan Hill's northern border.

• **Solano County:** A developer-sponsored initiative will appear on the November 1999 ballot in the City of Fairfield. Claiming to set aside 1.5 acres of open space for every acre developed — actually protecting steep, unbuildable hillsides — this initiative would develop valuable Solano County farmland. It also identifies five new areas beyond Fairfield's borders for annexation.

As Urban Habitat Program consultant Myron Orfield puts it, projects like these "will commit the region to sprawling land use vastly disproportionate to population increases, worsening congestion, increasing energy consumption, and air pollution."

**I**n assessing such projects, critics recite a familiar litany of major ecological consequences.

#### Traffic

Because our land-use patterns are dysfunctional, our transportation system regularly grinds to a halt.

Wealthy communities in Silicon Valley and San Francisco allow almost no working- or middle-class family housing, displacing this demand as far as the Central Valley and Salinas.

"It's really impossible for poor people looking for work to even get where the jobs are," Carl Anthony of the Urban Habitat Program told *Terrain*. "If they're poor, they (may not) own cars, and they will have to rely on public transportation. And of course, if our public transportation system is underfunded, it means that people who rely on these systems can't get where they have to go."

In inner city neighborhoods, the stresses of underfunded schools, public safety concerns, and economic decline also displace housing demand. Those who can leave, usually do.

The overall result? Workers drive farther to their jobs. Between 1990 and 2020, according to the Metropolitan Transportation Commission, the estimated number of highway miles people drive on weekdays is expected to grow by 35 percent — from 113.4 million to 152.6 million.

#### Air Quality

During the recession of the early 1990s, the Bay Area's air met standards set by the Environmental Protection Agency

(EPA). Then in 1998, five years into California's vaunted economic boom — with unemployment here at an all-time low of 3.7 percent and more people driving to work — the Bay Area's air quality relapsed, violating national standards once again.

Assuming no improvements in vehicle fuel efficiency by 2020, the Bay Area will consume over 1.7 million more gallons of petroleum per day, just driving. Creating nearly 20 pounds of carbon dioxide (CO<sub>2</sub>, a greenhouse gas) per gallon of gasoline burned, the region could generate nearly 34 million more pounds of CO<sub>2</sub> per day than it did in 1990.

#### Wildlife

As sprawl creates low-density habitat for humanity, it also destroys natural habitat and threatens many plant and animal species with extinction. Historic accounts, writes Gray Brechin in *Farewell Promised Land: Waking From the California Dream*, spoke of masses of birds so thick they cast a shadow, "thunderous rivers of geese, ducks, and swans"



In the early 1960s, conservationists led by Huey Johnson fought off the Marincello development, which would have brought 18,000 housing units to this stretch of Gerbode Valley in the Marin Headlands. Diptych photo by Robert Dawson from the *Farewell, Promised Land* Project.

migrating to Pacific Flyway stops along the Bay estuary: "Now there was nothing. Like most Californians, I'd come to take the emptiness for granted."

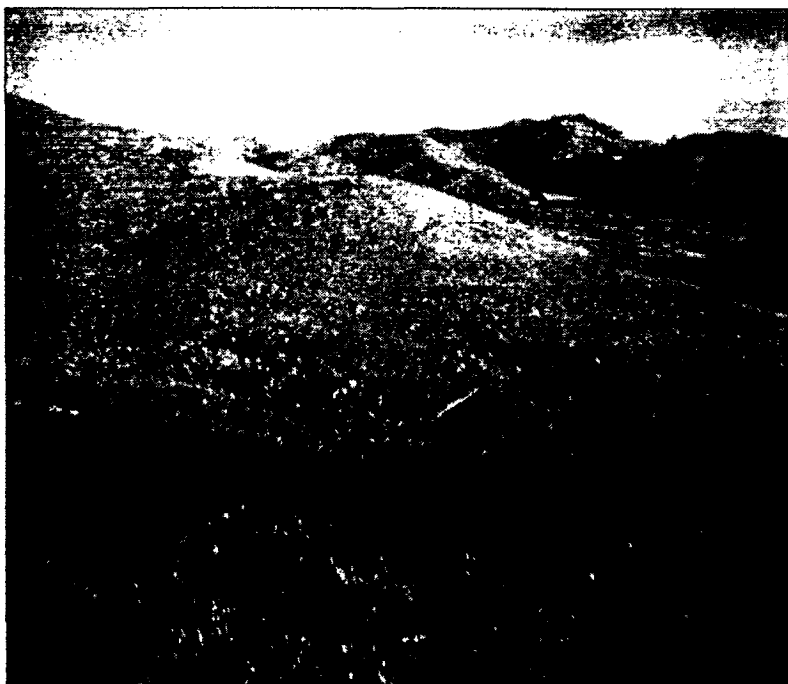
In eastern Alameda and Contra Costa counties, development has imperiled the Alameda whipsnake, now endangered, which is endemic to the rolling hills and marshlands typical there. Vernal pools, on the Santa Rosa Plain and in Solano County, harbor many endangered plants; even if they're not paved over, they can be ruined by sediment eroded from nearby subdivisions, and oily or

pesticide-laden runoff. Oak trees, which shade grassy valley floors throughout California, vanish as development encroaches on the lands they need to produce saplings. The range of the San Joaquin kit fox shrinks as cities spread out in the Central Valley.

"We lost half the population of burrowing owls in the Bay Area in the last 10 years," largely through habitat loss, says Lynn Trulio, professor of environmental studies at Cal State University, San Jose, "and they're still declining at a precipitous rate."

### Agriculture

Wildlife is not the only casualty, as farmers like Kao Saechao can attest. A 1995 report by American Farmland Trust estimated that if displaced housing demand from Bay Area cities and sprawl from Central Valley cities continue unchecked, another one million acres of Central Valley farm soil would convert to suburbs by 2040, with another 2.5 million acres at risk of conversion.



### Floods

The more watersheds we pave over, the greater flood hazards become. Rainfall on open grasslands or forested hillsides soaks in to recharge creeks, rivers, and aquifers. Vegetation stabilizes soils and soaks up moisture, slowing water's trip back to the sea. Rainfall hitting asphalt roads, concrete sidewalks, and roofs runs right off. Downstream, floods crest more quickly and cause more damage, as commuters on State Route 4 at Kirker Creek, as well as flood-weary residents of Napa, Santa Cruz, and Alviso, can attest.

### Water

Sprawling subdivisions require far more landscape irrigation than do more compact developments. State projections suggest the Bay Area will face a cut of up to 24 percent in water supplies in future drought years. The state claims its projections include aggressive conservation assumptions, but the Environmental Water Caucus, a statewide coalition involved in the CalFED planning effort, says more could be conserved in the Bay Area (See *Terrain* Winter '98, Spring '99).

### Sewage

Cities like Berkeley, Oakland, Richmond, and San Francisco have huge bills for infrastructure repairs and maintenance. Tax dollars used for new roads, parks, water and sewer systems for distant sprawl could be reallocated for repairs and replacement of aging infrastructure, literally laying the groundwork for urban renaissance.

Instead, new subdivisions require sewer service

extensions at great expense with no assurances of safe disposal. Lack of adequate sewage treatment and disposal currently limits the rate at which Contra Costa County can be built out — that is, until the Dublin-San Ramon Services District and the Livermore-Amador Valley Wastewater Management Authority obtain access to Hayward's sewer pipes leading into San Francisco Bay. That plan, which seeks a 50% increase in the capacity to move treated sewage, would dump nearly 32 million gallons a day into the Bay, where some people still fish for their meals. Many of those anglers are from communities of color.

### Social Justice

Indeed, sprawl is inextricably linked to urban issues in a number of ways. Take "brownfields." The estimated 450,000 abandoned toxic sites in urban areas in the US (with freeway access, sewer, water, and road services already in place) could be cleaned up for redevelopment. Instead, investments are flowing to the periphery. The obstacles to addressing the problem are psychological, says Carl Anthony of Urban Habitat Program. "All

that is blocking a coalition between environmentalists and the inner city is the way we think," he says in a *Yes!* magazine interview. "I sometimes call it an 'apartheid of consciousness.'"

**Y**et with a little consciousness shifting, solutions abound:

Place tight boundaries around all fringe cities past which they cannot spread, increase densities within them, and you may stop sprawl even as you accommodate growth. Since 1996, 15 Bay Area cities have adopted urban growth

*continued on page 34*

boundaries, beyond which cities will not provide services or approve development. But some of the boundaries, like those in Ramon and Brentwood, are so spacious they still encourage sprawl.

By sharing property and sales tax bases equitably, as proposed by Minnesota state legislators in 1995, Bay Area cities and counties could end the destructive competition for tax base, and more investment would make the areas better places to live — as pedestrian- and transit-oriented alternatives to the suburbs.

Governments could collaborate regionally to provide housing and social services and restore damaged urban ecosystems too.

"We have a great opportunity to invest in the low-tax-base and socially stressed places of the Bay Area like West Oakland, East Palo Alto, Bayview-Hunter's Point, Richmond, and San Jose," Anthony told *Terrain*.

While that investment could threaten to displace poor residents as property values and rents increase, Anthony said, shared tax revenue could help mitigate gentrification. With new revenues, low-tax-base cities could create loan programs and rent subsidies to encourage landlords to fix up properties while keeping current tenants. Penalty fees on rapid property turnover could also serve to discourage speculation and stabilize real estate values. Strict limits could be placed on new large-scale, high-

income projects that are the most disruptive agents in fragile inner-city economies.

"If the capital invested (in stressed neighborhoods) grows gradually," Anthony told *Yes!*, "it tends to strengthen incumbent communities and organizations."

Bay Area corporations, community groups, environmentalists, politicians, and design professionals are building a constituency to change the state's tax and legal systems to address sprawl and urban decline. Groups like California Futures Network, the Bay Area Alliance for Sustainable Development, Urban Ecology, Greenbelt Alliance, and Urban Habitat Program are organizing to educate the public and promote new ideas as "smart growth." *Terrain* will be keeping tabs on their efforts.

But as long as the Bay Area's wealthy communities continue winning new tax base and jobs, while exporting worker housing demand, the problems will remain.

"For too long, critiques of suburban sprawl have separated land-use questions from the racial and class conflicts that have plagued America for 400 years," Anthony concludes. "The critical question we must all answer together is, how can we proactively create a social movement that changes the rules of the land-use game to stop sprawl, while addressing social justice in a multicultural society?"

*Tim Strohane is a planner for the city of Berkeley.*



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# Where the Money Flows

## The Green Scheme for Delta Waters

by Tim Stroshane

**R**ogene Reynolds placed a framed property deed at the front of the sweltering Roberts Island Farm Center, announcing herself as a fourth-generation farmer in the Sacramento-San Joaquin River Delta. Then she said in a sweet Delta drawl, "I haven't been romanced this good since I was 17." The audience of aging farmers and their families whooped with glee.

Reynolds and her Delta farming community are being courted by CalFED, a federal-state agency whose mission is solving Bay and Delta environmental and water management problems (See p. 22). CalFED staff assured a skeptical audience that the agency's \$4.4 billion package would address weak Delta levees, lost habitat, endangered species, and declining water quality — while ensuring reliable exports to San Joaquin Valley and Southern California.

Proposing an array of "common programs," CalFED promises to shore up the levees, increase farm and urban water-use efficiency, and restore fish habitat and freshwater wetlands in the Delta to comply with federal and court mandates. But CalFED plans also emphasize "storage and conveyance" facilities — dams, reservoirs, and canals. Those facilities, combined with CalFED's water market scheme, could destroy still more ecosystems and rural communities to save the state's wealthier regions, much the way great rivers of the Central Valley and communities of Owens Valley were ruined earlier this century.

### The Route Canal

Last March CalFED released three alternative programs and expects to select a

"preferred alternative" this December. Environmental reports are to be finalized by fall 1999. Currently, no popular vote is expected on CalFED proposals.

For all three alternatives, the agency insists that the "common programs," including water market transfers, are indispensable. Each alternative may also include up to 5.5 million acre-feet of new reservoirs in the Sacramento Valley and 750,000 acre-feet of groundwater storage in the Central Valley. (One acre-foot is one acre, a foot deep: about 326,000 gallons.)

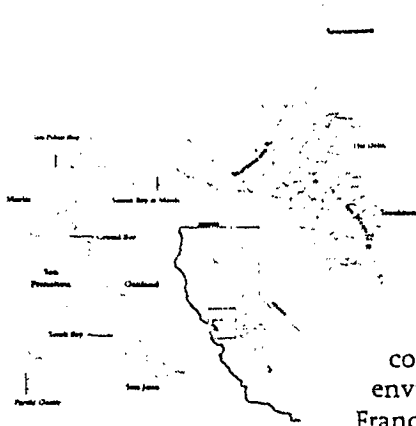
In alternative one, few structures for "conveyance" would be built in existing Delta channels. In alternative two, a short "on-ramp" channel from the Sacramento River would be dug at the town of Hood to shift freshwater flows into central and south Delta channels.

The third alternative, however, includes the Peripheral Canal, roundly rejected by California voters in 1982 (See sidebar, p. 25). In public, CalFED leans toward the second alternative, with the Peripheral Canal as a "contingent" strategy.

The Peripheral Canal — in CalFED-speak, an "isolated conveyance facility" — would deliver good-quality Sacramento River water around the Delta's east side to State Water Project and Central Valley Project pumps for export to an array of current and potential customers: San Joaquin Valley farms, southern California cities, prospective suburban

CalFED proposals could destroy still more ecosystems and rural communities to save the state's wealthier regions

## What's CalFED?



Founded in 1995, CalFED is a collaboration of 14 federal and state agencies ranging from the federal EPA to the state Bureau of Reclamation. Accountable only to its member agencies with no formal oversight, CalFED operates with a staff of about 20, drawn from its agencies. CalFED has a potentially conflicting dual mission: to solve environmental problems of the San Francisco Bay and Sacramento-San Joaquin River Delta estuaries; and to improve water supply reliability of

water systems pumping from Delta channels.

Bay and Delta ecosystems have been besieged with salt water and pesticide-laden flows and with the loss of native aquatic species since State Water Project and Central Valley Project pumps began operating in the 1950s and 1960s.

A 1986 court decision requires the State Water Resources Control Board (SWRCB) to protect water quality and the public trust in the Bay and Delta. The California Department of Fish and Game, the US Fish and Wildlife Service, and the National Marine Fisheries Service can enforce endangered species requirements as well.

By 1992 the Delta had become so degraded that the US Environmental Protection Agency (EPA) threatened to impose its own water quality standards on the state. Stakeholders signed a "Bay-Delta Accord" in December 1994. In 1995, CalFED undertook to restore the Delta and improve water supplies, and the SWRCB completed a water quality control plan.

The SWRCB is nearing a water-rights decision that would allow it to implement the 1995 water quality plan. The board would then assign flows from water rights holders throughout the Central Valley watershed, helping enhance and restore Delta fisheries and water quality. EPA will have final say over whether the SWRCB did its job well enough.

-T.S.

Map courtesy of San Francisco Estuary Project

laden flows and by the loss of a variety of native fish and aquatic species.

To address ecological stresses in the Bay-Delta watershed, CalFED proposes an ecosystem restoration program plan (ERPP). Throughout the Central Valley, according to the ERPP vision, CalFED would return streams to their natural channels, replenish a range of aquatic and terrestrial wildlife species, and replace nonnative species with native seedlings in riparian, wetland, and aquatic habitats.

The US Bureau of Reclamation and the State Water Resources Control Board (SWRCB) can reinforce CalFED's proposed restoration. The federal Central Valley Project Improvement Act of 1992 charges the bureau with releasing 800,000 acre-feet each year to protect Central Valley rivers and the Bay-Delta fisheries. And under the Act, Congress may give the bureau \$50 million a year to buy water from willing sellers to enhance river flows and fish habitat in the Central Valley.

To comply with a 1986 California court decision, the water resources board is nearing a decision requiring all Central Valley water rights holders to contribute environmental flows to the Central Valley watershed. CalFED's new proposals are supposed to comply with these requirements, and build on them.

If effectively enforced, these government efforts could guarantee beneficial environmental water flows to Bay and Delta estuaries, which would benefit Delta farmers as well. Under a proposed water market, the bureau would function as a buyer for environmental interests.

But there's a catch. The bureau has dragged its heels for six years on delivering the 800,000 acre-foot release, only now completing its environmental reviews. A budget-conscious,

green-hostile Congress makes environmental water purchase funds uncertain from year to year. In Sacramento, any decision the water resources board makes could be litigated for years, further delaying restoration.

Such delays and diversions demonstrate the dubiousness of with relying on state and federal guarantees of water for the environment while

developers, industrial manufacturers — all via the California Aqueduct and the Delta-Mendota Canal.

Since State Water Project and Central Valley Project pumps began operating in the 1950s and 1960s, Bay and Delta ecosystems have been besieged with salt water intrusions and pesticide-

massive dams and plumbing are put in place. Furthermore, access to water will be affected by CalFED's proposal to create a water market, where money will rule. San Joaquin valley agribusiness, thirsty Silicon Valley chip manufacturers, and southern California developers will probably get what they want from CalFED. Will environmentalists or small farmers?

### Imperiled Livelihoods

Rogene Reynolds has her doubts. Ecosystem restoration on private farmland, as CalFED proposes, would convert scarce productive land needed by debt- and price-squeezed Delta farmers. The farmers also fear losing direct control of their water supplies because operation of a Peripheral Canal would increase salinity in local Delta river channels, perhaps forcing the farmers to buy their water from the hated canal. CalFED now focuses its Delta restoration efforts on public lands, but farmers still insist a canal would imperil their livelihoods and communities.

Like Delta farmers, northern California environmental and community activists are skeptical of CalFED's green veneer and formed the Environmental Water Caucus (EWC) to try to keep CalFED honest. Several EWC groups are also represented on CalFED's Bay-Delta Advisory Council (BDAC), a body of urban, farming, and environmental stakeholders influencing CalFED's work, including the creation of a statewide water market.

"CalFED wraps itself in a thick environmental layer of levee stabilization and ecosystem mitigation programs that they call 'restoration,'" says Friends of the Rivers (FOR) lobbyist and EWC member, Steve Evans. "But what's really going on is the state and the feds want to build more big dams on live rivers, which will kill them.

"Fish screens (to block fish from entering canals or pumps) have been tried for years with these projects, and they still don't work.

are eligible for listing" under the Endangered Species Act," says Evans. "Good intentions don't count when we're down to a couple hundred fish."

Whatever its intentions, CalFED's focus on getting good-quality water across the Delta from north to south (alternatives two or three) poses a number of threats: flooding upstream riparian corridors by building dams; hurting farm communities by removing water from their economies; depleting Sacramento Valley aquifers as farmers sell surface rights to pump groundwater for themselves, or pump the groundwater for sale.

If CalFED continues to justify new dams, reservoirs, canals, and water transfers for a plan that sucks vital fresh water from an already ravaged delta, it will confirm that, as Rogene Reynolds of Roberts Island puts it, "(CalFED) doesn't give a rat's ass about the Delta. They just want the water for their pumps."

"Good intentions don't count when we're down to a couple hundred fish."



In October, 1977, Shasta Lake, north of Redding, showed "bathtub rings" after a two-year drought, lessons from which are being ignored by CalFED estimates of water demand.

Photo courtesy California Department of Water Resources

### Transfer of Water, Transfer of Wealth

While permitted by law today, water transfers — which allow owners of water rights to sell their allocations to buyers elsewhere in California — have occurred only sporadically, not as part of a statewide institutionalized market. Systematic water transfers would further shift wealth from poor to rich regions in California because urban areas and corporate farmers have more money than do environmentalists, family farmers, or rural communities.

Without advance public notice, individual farmers or water agencies from farming communities could cut deals to sell off water, which could mean crops go unplanted, permanent and seasonal farm workers lose jobs, packing sheds and agricultural services close, and rural unemployment skyrockets — at a time when the social safety net of the welfare system has been rent. In the euphemistic lingo of water market advocates, these injuries are “third party impacts.”

Urban business interests positively effervesce about water markets, which loosen the relationship of water to the land, making water more reliably available for business goals, from sprawling developments to chip manufacturing. “We need to get the market in place and see what happens,” says BDAC vice-chair Sunne McPeak, president and CEO of the Bay Area Council. “If we don’t want to waste a lot of water and money, let’s get a water market in place.”

The Environmental Defense Fund (EDF) and the Natural Resources Defense Council have long since joined the club, arguing that markets could free up water that now irrigates marginal agricultural land, a move they hope would end such questionable large-scale uses as irrigating alfalfa for cattle. Perhaps markets could even make dams unnecessary, they say. “There would be no reason to build enormously expensive storage projects if you could go out and buy water on the open market,” says BDAC member and EDF attorney Tom Graff, speaking to the *San Jose Mercury News* in May. “There would be localized impacts that are unavoidable,” adds EDF’s David Yardas. “Market

forces are not pain-free, but they work.”

But Barbara Vlamas of the Chico-based Butte Environmental Council isn’t buying it. “Out-of-basin water transfers are short-term fixes for mismanagement elsewhere,” she vehemently told BDAC last May, “The potential for destroying northern California resources and communities is high in what appears to be an effort to benefit corporate agriculture and urban sprawl.”

Vlamas speaks from first-hand experience. In 1994, when the Western Canal Water District arranged a water-transfer to San Joaquin Valley farms, the action had devastating results for local groundwater basins near Durham, southwest of Chico in Butte County.

Farmers, paid to extract and deliver water to the locations in the south,



Interstate 5 runs alongside two freeways of water, the Delta-Mendota Canal and the California Aqueduct.

Photo courtesy of California Department of Water Resources

"started pumping 24 hours a day, seven days a week, for months that spring," recalls Durham farmer Lynn Barris in an interview. "They sucked out the water, causing a cone of depression. It has split our community forever. It was 'greed *über alles*.'"

Other farmers in the District lost water and crops. "One farmer was forced to sell," Vlamas told *Terrain*. "And one of three municipal wells for Durham went dry. The town had to ration water that year, even though there wasn't a drought. It's a well-kept public secret here."

Water transfers galvanized environmentalist/farmer relations in the Butte County area, according to Vlamas, when the state Department of Water Resources (DWR) proposed a "supplemental water purchase program" in 1996. DWR's State Water Project (SWP) delivers less water to water agencies statewide than it promised to in the 1960s. To compensate, the proposed purchase program would have let DWR buy more supplies from northern California communities. One of the first places DWR looked for the extra water was Butte County, where a deal was in the works with little public notice.

"We raised holy hell about the supplemental purchase program," says Vlamas. "DWR was going to do just one public hearing about it. We made them do many more, and then they decided to drop the program."

That kind of conflict will now be played out at CalFED's level. In its plans, each water deal would be executed through a water transfer clearinghouse, and BDAC wants full public disclosure of "third party impacts" by the clearinghouse. As BDAC member Judith Redmond of the Community Alliance with Family Farmers put it to CalFED: "There is a community interest in water, and this interest must be represented."

But urban and water-rich farm interests in the BDAC are resisting the idea of disclosure of third party impacts.

Moreover, in a possible harbinger of things to come in the CalFED process, community stakeholders are already having a difficult time being heard. "Their participation is not encouraged," says Arlene Wong of the Pacific Institute, an environmental research organization in Oakland. "The way CalFED agendas are set, meet-

## Return of the Peripheral Canal

The primary source of fresh water in the Delta is the Sacramento River.

In the 1970s, California's water industry demanded construction of the Peripheral Canal to divert the river's water at Hood, just south of the Capitol, bringing it around the eastern edge of the Delta, to state pumps northeast of Tracy.

This meant that Delta farmers' water supplies from adjacent river channels would be more degraded — not only by the rising proportion of tidal saltwater from San Francisco Bay, but by higher concentrations of runoff from irrigation that leaches salts and pesticides via the San Joaquin River. Farmers would then have to pay for more expensive water from their closest source, the Canal. Delta freshwater habitats were also threatened by the degradation.

In 1982 the Canal was voted down, overwhelmingly in northern counties.

Today, CalFED's alternative three contains an "isolated conveyance facility" which CalFED insists is *not* the 1982 Peripheral Canal, even though it closely follows the old canal right-of-way. CalFED maintains the "isolated facility" would be tied to "common programs" to restore ecosystems, stabilize Delta levees, and improve Delta water quality. The largest version of the "isolated facility" would be two-thirds the size of the 1982 Canal.

This time, the federal government is involved in CalFED's planning process, and that means the new Canal has more governmental momentum — more that Canal opponents will have to fight.

- T.S.

ings conducted, and policies presented can be really hard for lay people to understand." While many low-income people eat fish from Bay and Delta channels and could benefit from ecosystem restoration, "(CalFED) doesn't do much outreach to poor communities," Wong points out. "They don't provide translators, for example."

### A House Divided

With its emphasis on water transfers, CalFED has so split environmentalists that the EWC has yet to come up with a policy position on the issue. "Some members are very much in favor of water transfers, while others take a much more cautious view," says EWC grassroots organizer Jenna Olsen.

Durham farmer Lynn Barris, who chairs the board of the Butte Environmental Council, told *Terrain*, "Though I'm not an EWC member, I've been working with them on water transfers, and they're never able to make decisions on it. There seem to be too many differences. Yet when the pro-water market members (of the EWC) speak in public, everyone assumes they speak for the whole environmental community in California. That's not true."

Why do green BDAC members remain in the process? If EWC groups pull out from BDAC, their thinking goes, they may lose CalFED's proposed

water-use efficiency, restoration, and levee stability programs. As Martha Davis of the Sierra Nevada Alliance sees it, "California's got some very serious problems: fish going extinct, legitimate water needs of cities and farms, and water quality concerns. The issue is making the CalFED process do its job."

Vlarnas challenges this approach: "I may be a purist, but we don't fix fouled-up environments like the Delta by fouling up other environments."



Great Egret, by Sarah Beth Lauterbach

### Skimming

Under the logic of CalFED, California's many water interests require a bustling new

How can CalFED plan if they haven't correctly defined the problem?

market facilitated by the right plumbing, including the Peripheral Canal, to ensure good water quality for each transfer deal. But water transfers require one key component — stored water, and more of it

than currently is captured. "Without increased storage," says a CalFED report released in August, "water transfers will only play a modest role in statewide water management."

CalFED uses a battery of studies to justify building new storage facilities, but environmentalists are dubious about the estimates: not only of the demand for stored water, but on where new supplies will come from.

CalFED wants it to come from floods — which would otherwise be helping organic processes in the Central Valley: spreading nutrients, transporting sediment throughout river basins,

replenishing vernal pools and freshwater wetlands. "CalFED believes peak floods could be skimmed for storage for someone's supply or for late summer environmental flows," says Gary Bobker of the Bay Institute of San Francisco, "but where do you draw the line between a small flood and a large flood for purposes of skimming for these new reservoirs? Besides, Bobker points out, dams and other devices to hold the extra water are tremendously expensive. "But even if the cost of these projects was low, there are still better alternatives available to us than dams."

Such alternatives include further water conservation statewide: Greens urge CalFED to strengthen its urban and farm efficiency programs. By lowering the need for water, they reason, you lower the need for new dams and reservoirs.

Experience is on their side. Though southern California faces an imminent loss of Colorado River supplies (a loss that squeezes Central Valley rivers and the Delta), the region's use of water fell in the 1990s about 25 percent from levels in the 1980s, largely because of drought and the protection of Mono Lake.

Ignoring this experience, CalFED's environmental reports, common programs, and facility designs rely on 1998 state water plan demand estimates. According to the California Research Bureau, the estimates were inflated by over a million acre-feet a year (equivalent to the volume of Folsom Lake), suggesting that CalFED's grand water facilities may be premature.

Learning of the faulty numbers, the EWC rejected the environmental reports and urged CalFED in August not to rush toward new dam and canal projects. According to EWC's Jenna Olsen, however, the agency continues to rely on the faulty data. "How can CalFED go forward to plan for California's future needs if they haven't correctly defined the problem?" asks Olsen. "We're in danger of arriving at some bad solutions here."

*To weigh in on the CalFED plan, especially on third-party impacts and disputed demand estimates, contact CalFED's Greg Young at 916-653-2666, or Jenna Olsen at the EWC at 415-977-5728.*

*Tim Strohane is a Berkeley-based city planner.*